

## ULTRA-WIDEBAND RADIO INTERFEROMETRY FOR MAPPING THE SOURCES OF THE MICROWAVE FLASHES IN THE GHZ FREQUENCY RANGE

*I.S. BAIDIN, A.V. OGINOV, E.V. PARKEVICH, K.V. SHPAKOV*

*P.N. Lebedev Physical Institute RAS, Moscow, Russian Federation*

The paper presents the results of ultra-wideband radio interferometry performed for the first time using 3 Vivaldi coplanar type antennas operating in the 1-6 GHz band. The system has been tested on an atmospheric high-current laboratory spark discharge channel in the long gap (~ 60 cm). The high voltage generator can generate electrical pulses with voltage magnitude up to 1.2 MV and current up to 12 kA. The antennas are located at a distance of 3-4 m from the discharge gap and register microwave radiation in various projections. The microwave radiation observed in the initial stage of discharge (before the main current flows) has the character of multiple short bursts. For the first time, localization of these flashes was carried out not only in time, but also in space using correlation analysis of signals from antennas. The features of the geometry used and the characteristics of the recording equipment make it possible to localize the sources of microwave flashes with an accuracy of 6 cm. A map of the observed microwave radiation is constructed. It can be noted that the most intense and well-correlated flashes of microwave radiation come from the near-cathode and near-anode discharge zones at a distance of about 10 cm from the electrodes. The observed effects are in good agreement with the theoretical assumptions and serve as a reliable basis for further research in this area.

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